

Research Paper



Metacognition as a bridge between remedial teaching and competency based learning: a conceptual framework under NEP 2020

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ABSTRACT

The National Education Policy (NEP) 2020 advocates learner centred and competency based education to promote holistic development and lifelong learning. As educational systems increasingly focus on equity and inclusion, remedial teaching has become an important strategy for addressing learning difficulties and supporting diverse learners. This review examines how remedial teaching can be strengthened through metacognition and discusses its contribution to self-regulated learning, higher order thinking and holistic learner development. Studies on remedial interventions, metacognition, assessment reforms and twenty first century competencies suggest that learners benefit when they are encouraged to plan, monitor and evaluate their own learning. Based on this evidence, the paper presents a conceptual framework explaining how metacognition links remedial teaching with competency based learning within the framework of NEP 2020. The proposed framework has implications for teacher education and classroom practice and provides a basis for future empirical research.

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1. INTRODUCTION

In today's context learners-centred pedagogy, competence-based approach and higher-order

thinking skills are becoming a key point of the education system. These thrust areas are encapsulated in the National Education Policy (NEP) 2020 that emphasizes that education should be holistic, flexible, creative and should promote lifelong learning. It also acknowledges the variability of learners' abilities, interests and learning needs. Thus, practices in education need to account for these differences and provide equal opportunities for learning. Gradual efforts have been made in curriculum and teaching strategies but disparities and gaps in learning remain a challenge for improving educational systems. Differences in cognitive readiness, socioeconomic background and previous learning experiences often lead to persistent learning difficulties that influence academic performance and learner engagement. In such situations, remedial teaching provides additional academic support for learners who experience difficulties in learning. Studies have shown that targeted instruction, diagnostic assessment and individualized learning strategies can improve learner achievement and promote educational equity [1], [2], [3]. At the same time, many remedial programmes continue to rely on repetition and content reinforcement, giving comparatively less attention to the cognitive processes involved in meaningful learning.

Existing research has examined remedial teaching, metacognition and competency based learning as separate areas of inquiry. However, relatively few studies have explored how these concepts are related within the framework of NEP 2020. This review addresses this gap by proposing a conceptual framework that views metacognition as the link between remedial teaching and competency based learning.

Accordingly, this review examines the role of remedial teaching in addressing learning difficulties and considers the contribution of metacognition to meaningful learning. It also explores the relationship between metacognition, self-regulated learning and higher order thinking, and explains how metacognitive remedial teaching may support the holistic and competency based goals outlined in NEP 2020. The discussion brings together evidence from different educational contexts to identify implications for teacher education, classroom practice and educational policy in India.

2. RELATED WORK

2.1 Remedial Teaching and the Need for Targeted Educational Interventions

Most of the remedial instruction that took place was and continues to be occurring in a repetitive and reinforcing fashion in content. New research has indicated that effective remedial teaching is more than just providing "extra" instruction, however. Identifying specific types of learning difficulties, and taking the necessary action through a developmental approach and intervention. For instance, a study into mathematics learning difficulties indicated that the inability to develop good conceptual understanding with lack of prior knowledge is leading to academic setbacks. The study also highlighted the importance of diagnostic assessment and personalised support on learning outcomes [2]. The findings indicate three related implications for effective remedial instruction: first, that the underlying cause of learning difficulties must be understood instead of just the academic results; second, that students need a sense of personal responsibility for solving this issue; and third, that the ability to solve this issue is determined by various contexts. Research in other educational environments also indicate that remedial teaching leads to shifts in learning outcomes and Equal Opportunities goals via individualized support and learner centred instruction [1], [4], [5]. This is in line with the Educational Philosophy of NEP 2020 which aims for inclusive and equitable education.

In the different studies a number of common practices of teaching can be seen. The importance of features of effective remedial programmes such as: Diagnostic assessment Continuous support and collaborative learning Individual instruction and Scaffolding, is repeatedly reported. These actual practices are congruent with that which was referred to as social constructivism where learning is seen as taking place through interaction, guidance and active participation. Remedial teaching is then viewed no longer with the notion of merely correcting weaknesses in acquisition and learning, but could also be seen as "development", meaning that teaching and learning is motivated towards meaningful learning.

Conversely, literature on learning improvement indicates that there are factors beyond extra instruction and content. They need to understand their thinking and be able to self-regulate them in order to effect lasting learning. This puts the focus on metacognition in remedial teaching. By encouraging beyond just correcting content, the learner's process of planning, monitoring and evaluation of learning is referred to as metacognition which will aid in supporting long term intellectual development and remedial teaching.

2.2 Metacognition as the Foundation of Effective Remedial Teaching

While remedial teaching in the past has been considered the solution to the problems coming from students' academic backgrounds, recent studies have shown that the development of conceptual change involves the ability to understand, monitor and regulate one's thinking and requires the development of these abilities in the learner. Therefore, remedial teaching as an explanatory variable of the effectiveness of remedial teaching cannot only be understood as the additional instructional support. Rather, metacognition provisions them understanding about their learning while assisting their intellectual development throughout the life course. Research from various educational environments is consistent with the importance of metacognition. It was found that metacognitive knowledge was enhanced and student performance was better with activities having the structures of reciprocal teaching interventions that focused on comprehension monitoring, reflection and dialogue, which promoted reading fluency [6]. There was also research on other approaches to teaching that also showed that activity learning, self-monitoring etc. had an impact on academic results [7]. These studies together indicate that metacognitive awareness is significant to effective learning and not added on to the process of learning. Studies in metacognition in teacher education, and in STEM education and technology-supported learning environments also reveal that metacognition processes foster reflective thinking and learner autonomy and effective problem solving [8], [9].

The results of these outcomes are representative of the broader educational benefits that metacognition has for enhanced learning and thinking. Also, in the Indian knowledge tradition, self-awareness and reflective thinking is considered an integral part of learning and intellectual growth [10] was observed as such. The studies considered here identify a number of commonality in the studies that concern metacognitive processes, which, although they can vary according to the methods used for research or to the setting in which the education activity takes place, they often include these processes: Planning, Monitoring, Evaluation and Reflection.

Students who are consciously aware of their thinking tend to be more flexible, possess better understanding and academic achievement. These observations are correlated with the definition of metacognition by Flavell and make the metacognition a very important in meaningful learning. The evidence adds up – there is no prevailing indication that metacognition is an extra add-on aspect of remedial teaching. It is a process that the learner understands, regulates and improves his learning. Reflective thinking and strategic awareness is fostered as students grow and improve, the work of the remedial teacher transcends correcting problems related to their academic learning, and becomes developmental instead. This process also encourages the development of self-regulated learners who are better prepared to deal with increasingly complex learning tasks.

2.3 Metacognition, Self-Regulated Learning and Higher Order Thinking

Meaningful learning involves more than acquiring subject specific knowledge. It also requires learners to take an active role in regulating their cognitive and motivational processes. Metacognition enables learners to understand and monitor their own thinking, while meaningful educational development depends on their ability to apply this awareness to purposeful learning. In this way, self-regulated learning develops through metacognitive engagement and provides the basis for higher order thinking and lifelong learning.

Research in higher education and teacher education shows that metacognition supports self-regulated learning and higher order thinking by encouraging planning, monitoring and reflective evaluation. These processes strengthen critical thinking, creativity and learner autonomy, enabling learners to become active participants in their own learning [8], [11].

Further evidence is provided by research on research skill development and twenty first century competencies. In 2024, Swaminathan Gurumurthi's doctoral study showed that instructional approaches based on reflection, collaboration and higher order cognitive processes improved creativity, communication and analytical thinking. The study also emphasized the role of Bloom's taxonomy in helping learners progress from factual knowledge to evaluation and creation. The findings demonstrate that metacognitive engagement is related to intellectual development and the formation of higher level cognitive abilities. Higher order thinking also has a role towards personal and social development other than academic achievement. Twenty first century skills reported to be relevant to holistic education highlight the need for creativity, critical thinking and collaboration in the process of participating in the society of the twenty first century [12]. These skills are more akin to the "learner centred" and "competency based learning" approach of NEP2020 and are useful in guiding education practice, which strives for alternate approaches that promote intellectual flexibility and lifelong learning. The findings of the studies examined are similar despite the fact that the studies employed different approaches and varied educational contexts. An important characteristic of effective learning is consistently present and it is that of learner autonomy, reflective engagement and cognitive flexibility.

Planning, monitoring and reflection enable pupils to become more involved in their learning and to use more sophisticated thinking skills. Consequently, self-regulated learning and higher order thinking may be considered as 'natural products' of metacognitive awareness. The sum total of the literature suggests that metacognition connects remedial teaching to higher intellectual functioning. Gradually learners lose the need for external help and learn how to become autonomous, creative and lifelong learners through self-regulated learning and higher order thinking. This step is supportive of the overall vision of competency based education in NEP 2020. The pedagogical principles to enable the development twenty first century skills are summarized as shown below in Table 1.

Table 1. Pedagogical Principles for Teaching Twenty First Century Skills [13]

Principle	Description
Make it relevant	Students understand a specific topic when they are clear about how it fits into the big picture.
Teach through the disciplines	Learning the knowledge (content) of a discipline and the skills associated with the production of that knowledge.
Develop thinking skills	Lower and higher order thinking skills allow flexible and applicable understanding.
Encourage learning transfer	Transfer of skills, knowledge, and strategies to another context, situation, or application; includes different modes of transfer.
Teach how to learn	Learning to learn independently (metacognition) is a critical skill; every skill cannot be taught through formal schooling.
Address misunderstanding directly	Learners develop misconceptions; teachers should explicitly address them to deepen student understanding.
Treat teamwork like an outcome	Instruction should be designed so that students learn from and with others, enabling optimal learning.
Exploit technology to support learning	Facilitates transfer of skills, collaboration, addressing misunderstandings, and reflecting on thinking of self and peers.
Foster creativity	Creativity is incremental, and students can learn to become more creative; it helps create jobs, address challenges, and promote social and individual progress.

2.4 Assessment and Learner Centered Pedagogy in Competency Based Education

A new instructional paradigm that entails the shift from content-based instruction to competency-based instruction, has called for a reevaluation of traditional teaching and assessment methods. Rote learning and summative tests have been the hallmark of traditional assessment methods,

which have come under criticism for their inability to adequately measure meaningful learning and complex thinking. The contemporary interpretation of the educational phenomenon marginalises and diminishes the importance of reading, writing, and numeracy as core tools for reflection, critical thinking, and competence construction and acquires new practices centred on 'reflection', 'critical thinking' and 'competency' development. These viewpoints have been viewed as similar to NEP 2020's "Education for all". Learner centred pedagogy see students as active contributors to learning; explore students' queries; focus on team work and understanding context.

This becomes meaningful in particular in remedial situations, where there is no point in preparing a child to complete tasks as quickly as possible but with minimal learning, since a meaningful result will only be achieved through ongoing efforts and reflective learning. Constructivist orientations also help to substantiate this orientation and shift in attitude since they focus on the construction of knowledge through interaction and experiences, rather than simply instruction. The relevance of assessment in this context goes beyond the one related to academic achievement. Research evidence on formative assessment strategies showed that procedures like self-assessment, collaborative assessment, self-reflection, and peer reflection have a positive effect on metacognitive awareness, critical thinking and learners' involvement [14]. The results suggest that good assessment can be an effective tool for fostering cognitive development but it does not need to be used as an evaluative tool. The Pedagogical practices and their corresponding metacognitive are shown in Table 2.

Table 2. Pedagogical Processes and Corresponding Metacognitive Outcomes

S. No.	Pedagogical Practices	Metacognitive Outcomes
1	Self-talk Exercise	Awareness of thought processes; clarifying reasoning
2	Self-assessment task: To reflect on strengths and weaknesses through SWOT analysis	Identification of strengths/weaknesses; goal setting
3	Open-ended questions on own experiences and thoughts	Reflection on personal and professional experiences
4	Sharing of experiences	Collaborative reflection; perspective-taking
5	Situational discussions	Application of metacognition to real-life scenarios
6	Reflective and reflexive thinking	Deep analysis of actions, decisions, and outcomes
7	Problem-based learning	Active engagement with complex problems
8	Reciprocal teaching	Co-regulation of learning; peer reflection
9	Inquiry-based teaching	Independent questioning and exploration
10	Inductive teaching	Deriving principles from examples; pattern recognition

Conventional models of testing have been found to have a number of limitations, which has led to increased interest in alternative models of assessment. Future studies on standardized testing considered the educational benefits of real-life and competency-based assessment techniques that emphasized the understanding, creativity, and problem solving over the memorization of facts [15]. This reflects an approach that recognizes that significantly more can be represented in a learner's educational success as broader learning than; knowledge, skill and disposition. A summary of various forms of assessment and their learning purposes are summarized in Table 3.

Table 3. Types of Assessment and Their Educational Purposes

Researcher	Type of Assessment	Key Features/ Educational Purposes
William and Thompson (2008)	Formative	Supports learning through ongoing feedback; helps learners monitor their progress and improve.
	Summative	Verifies and certifies learning achievements at the end of an instructional period.
	Evaluative	Evaluates the quality, effectiveness, and impact of programmes or institutions.
Garrison and Ehringaus (2007)	Summative	Conducted after instruction; helps evaluate the effectiveness of the program, school improvement goals, alignment of curriculum, and student placement.
	Formative	Part of instructional practice; helps adjust teaching and learning while they are happening to achieve targeted standard-based learning goals.
Stiggins (2002)	Assessment of Learning	Focused on retention of facts learned through a transmission model; determines the current status or level of learning.
	Assessment for Learning	Analyzes the skills required for future learning; reveals learners' capacities and supports further learning to be added as part of the system; promotes greater learning and improvement.
Taras (2005)	Summative	Provides a judgment that encapsulates all the evidence of learning up to a given point in time.
	Formative (Assessment for Learning)	Requires feedback that indicates the existence of a 'gap' between the actual level of performance and the required or expected standard.

As shown in Figure 1, formative assessment contributes to holistic learner development through metacognitive awareness, self-regulated learning and higher order thinking.

**Figure 1.** Pathway from Formative Assessment to Holistic Learner Development under NEP 2020

The same views can be seen in the assessment reform discussions that took place as part of NEP 2020. Scholarly discourses about the vision of assessment under the policy focused on shifting away from exam-oriented practices and toward multidimensional and continuous assessment systems that have the potential to foster conceptual understanding and learner autonomy [16]. In support of these observations, some research on current assessment and evaluation reform reiterated the need for competency based thinking that calls for application, creativity, and reflection. All of these investigations point towards a rethinking of assessment: rather see it as part of learning, do it during learning. Overall the findings highlighted that, learner centred pedagogy and formative assessment would be helpful in fostering metacognitive awareness and competency based learning. The results indicate a common thread that learner centered pedagogy is a core element of assessing reform, with competency based education is a core element of learner centered pedagogy. Their importance is not only in assessing students' learning but also has direct implications for their metacognitive awareness, self-regulation and higher order thinking as well. By creating opportunities for reflection, participation and continuous improvement, these approaches provide the pedagogical conditions necessary for the realization of the broader educational goals envisioned by NEP 2020.

2.5 Holistic Learner Development and the Educational Vision of NEP 2020



Figure 2. Components of Metacognitive Remedial Teaching for Competency Based Learning Under NEP 2020

The major components of metacognitive remedial teaching under NEP 2020 are illustrated in Figure 2. Education today is expected to support learners in ways that extend beyond the acquisition of subject knowledge. It also aims to prepare individuals who can respond effectively to intellectual, social and ethical challenges. The National Education Policy (NEP) 2020 reflects this broader view of education by promoting the development of well-rounded individuals with the cognitive, emotional and social competencies needed for lifelong learning and responsible citizenship. In this context, holistic learner development has become an important goal of educational reform and provides the broader foundation for learner centred and competency based education.

The development of twenty first century skills is an important part of this broader educational perspective. Studies examining the relationship between holistic education and twenty first century competencies emphasize the importance of creativity, communication, collaboration and critical thinking in promoting balanced learner development [12]. Emotional intelligence and experiential learning have

been cited as valuable tools to bolster as well as intellectual growth and development, alongside with the relevance of 'Mindfulness' as described. Personal growth. The results indicate that multiple dimensions of learners should be developed in a manner separate from the academic achievements. Three dimensions of learning are concerned in the holistic approach to learner development: cognitive, emotional, ethical and social. This is in line with the importance of building competencies like creativity, critical thinking and lifelong learning, which is an objective of NEP 2020 [10] and supportive in psychology research and Indian knowledge tradition [12] and science education [17]. While not every concept of the studies reviewed mirrored in theory with one another, or in education settings of course, they did offer a similar definition of what learning is and what it should be.

The qualities of being able to change, aware, resilient, and working together and being responsible are continually resonant as essential qualities of learning. The integration of the cognitive, emotional and social dimensions shown in these studies, should be the only approach to meaningful education that focuses on examination oriented approaches. In fact, NEP 2020 has many similarities with these ideas.

The policy fosters multidisciplinary learning, reflection, creativity, critical thinking and competency development and is even stressed in the values of social responsibility and ethics. This moves towards moving away from content centred education to learner centred and inclusive education. In this sense, the holistic growth of learners is the overarching concept that contains the intellectual, emotional and social aspects of growth. Based on literature reviewed in this study, the holistic development of the learners can be done through sequences as follows: remedial teaching → metacognitive engagement → self-regulated learning and pedagogies that are centred around the learners. Reflection, higher order thinking, emotional resilience, and ethical responsibility are what learners need to be able to do to meet the needs of today's society, and these skills build their reflective awareness, higher order thinking, emotional resilience and ethical responsibility. In this regard, holistic learner development is the higher educational goal that will help in competency-based learning as per the NEP 2020.

3. METHODOLOGY

In this study, the conceptual review method is used to explore literature on the topic of remedial teaching, metacognitive, self-regulated learning, higher order thinking and competency based learning in the light of NEP 2020. It examines the relationships between these, and describes how metacognition helps to tie remedial teaching with competency learning. To conduct the methodology a series of steps were used:

3.1 Study Design

The literature review conducted for this study is related to remedial teaching, metacognition, self-regulated learning, higher order thinking and higher order competency based learning in accordance with NEP 2020. Numerous studies conducted across various contexts were reviewed in order to gain insight into how these relate to each other, and how they might support pupil development. The focus on metacognition and its contribution to SRL, HOTS and wholesome learning of the students was given special consideration. Hence content analysis of the literature reviewed was used to construct a conceptual framework explaining the relationship between remedial teaching and competency based learning under NEP 2020.

3.2 Conceptual Framework

The proposed framework places metacognition at the centre of the relationship between instructional interventions and broader developmental outcomes. It suggests that the effectiveness of remedial teaching should be understood not only in terms of short term improvement in academic achievement but also in its ability to develop reflective, autonomous and competent learners. From this perspective, metacognitive remedial teaching serves as a developmental approach that supports the

holistic and competency based educational goals of NEP 2020.

Figure 3 summarizes the conceptual framework developed in this study. It illustrates the progression from learning difficulties and remedial teaching to metacognitive awareness, self-regulated learning, higher order thinking, learner centred pedagogy, holistic learner development and competency based learning within the framework of NEP 2020.



Figure 3. Conceptual Framework of Metacognitive Remedial Teaching under NEP 2020

4. RESULTS AND DISCUSSION

4.1 Discussion of the Proposed Conceptual Framework

The literature reviewed in this study suggests that remedial teaching should be viewed as more than an instructional approach for improving the academic performance of low achieving learners. Recent studies have shown that effective remedial interventions have a positive impact on cognitive learning, motivation and personal growth. This wider context gives us an understanding of a conceptual framework that helps to explain how various educational processes help facilitate meaningful learning. Implementing diagnostic assessment, individualized instruction and scaffolding, is highlighted as important in helping to address learning difficulties, consistent with the literature on remedial interventions [1], [2]. Investigations into achievement gaps and educational policy also suggests that targeted assistance is an important factor in securing equitable learning opportunities [14], [18]. Together, these findings suggest that remedial teaching represents the beginning of a developmental process rather than simply a corrective instructional strategy.

The reviewed literature also indicates that improvement in learning cannot be explained only by additional instruction. Studies on reciprocal teaching, metacognitive interventions and teacher education show that reflective engagement, self-monitoring and cognitive regulation improve both learning and academic performance [6], [19], [20]. Similar findings from STEM education and AI supported learning environments demonstrate that metacognitive awareness encourages adaptability, self-efficacy and reflective practice [8], [9]. These studies place metacognition at the centre of the developmental process and show how it strengthens the effectiveness of remedial teaching.

Metacognitive awareness also contributes to the development of self-regulated learning. Research involving higher education learner's shows that reflective engagement and self-regulation improve learner autonomy, motivation and academic self-efficacy. Studies examining the psychological dimensions of educational reform similarly point to the importance of resilience, adaptability and self-awareness in meaningful learning. These observations are consistent with Zimmerman's theory of self-regulated learning and suggest that learners gradually become more independent and responsible for their own learning.

The reviewed studies further show that self-regulated learning supports the development of higher order cognitive abilities. Research on cognitive enhancement, mathematical thinking and problem solving emphasizes reflective reasoning, creativity and analytical thinking as important elements of intellectual growth [11], [21]. Similar conclusions were reported in Swaminathan Gurumurthi's doctoral research on research skill development, where reflective and inquiry based pedagogies improved creativity, communication and higher order thinking. These findings also support Bloom's taxonomy by demonstrating how metacognitive engagement helps learners progress towards more advanced levels of cognition.

However, the effectiveness of this developmental process also is aided by pedagogies and assessments that are learner centred. Numerous studies have demonstrated that formative assessment and authentic evaluation activities involving ongoing feedback, self-assessment and reflective engagement fosters better critical thinking and learner autonomy [14], [15]. Similarly, studies examining changes in assessment in the NEP 2020 also suggest that a multidimensional and competency-based evaluation is desirable [17]. Together, these studies show that assessment plays a role not only in the measurement of learning, but also in cognitive development. Finally, the relation among remedial teaching, metacognition, self-regulated learning and higher order thinking in all aspects result in holistic learner development. The study of twenty first century skills, teacher development and psychological wellbeing mentions the qualities of being creative, resilient, working collaboratively, and responsible for one's actions and inactions, as being essential traits of the contemporary learner [12], [22], [17]. Balanced development considers the notions of self-awareness and reflective consciousness important elements of knowledge in the Indian knowledge tradition [10]. These findings suggest that holistic learner development represents the broader outcome of the developmental processes discussed throughout this review.

The proposed framework does not introduce a new theory. Instead, it brings together ideas from metacognitive theory, social constructivism, self-regulated learning theory and learner centred pedagogy to explain how remedial teaching can contribute to competency based learning under NEP 2020. Viewed together, these perspectives provide a coherent explanation of how targeted educational interventions support meaningful and sustainable learner development.

4.2 Implications for Teacher Education and Classroom Practice

The conceptual framework proposed in this study has several implications for teacher education and classroom practice. These are outlined below.

4.2.1 Diagnostic Assessment

Teachers should employ diagnostic assessment to identify learning difficulties and provide targeted remedial support according to the individual needs of learners.

4.2.2 Metacognitive Scaffolding

Instructional practices should encourage learners to plan, monitor and evaluate their learning in order to strengthen metacognitive awareness and self-regulated learning.

4.2.3 Reflective Practices

Teacher education programmes should promote reflective practices that help learners develop critical thinking, problem solving abilities and learner autonomy.

4.2.4 Continuous Formative Assessment

Assessment should be viewed as a continuous learner centred process that provides constructive feedback and supports competency based learning rather than merely measuring academic achievement.

4.2.5 Technology Integration

The effective use of digital technologies and interactive learning environments can strengthen metacognitive engagement, collaboration and meaningful learning in line with the objectives of NEP 2020.

5. CONCLUSION

This review examined the role of remedial teaching within the learner centred and competency based framework of NEP 2020. According to the literature reviewed, remedial teaching is not just a corrective method to improve learners' school performance, it is also a pedagogical approach that offers support in the sense of assisting children in their learning and in engaging them in meaningful learning activities. The results also show that metacognition has a significant influence on enhancing SRL processes, thinking ability in higher order level and all round learner development. Remedial teaching is a connection point between metacognition and the overall objective of increasing NEP 2020. The work integrates the examination of cognition, motivation and pedagogy, and offers some insights about the importance of educational intervention in developing reflective, autonomous and competent learners. While the conceptual understanding of the relationship between remedial teaching, metacognition and competency based-learning given in this review is very welcome, the framework suggested in this review needs empirical tests. Further studies with experimental, longitudinal and mixed method designs are warranted for its use with various populations and educational contexts.

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Author Contributions Statement

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Ashish Tule	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓
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C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

Conflict of Interest Statement

The authors have no conflict of interest to declare concerning the publication of this article.

Informed Consent

Not applicable. This study did not include human subjects.

Ethical Approval

Not applicable. The study is completely qualitative and involves review and synthesis of the published literature.

Data Availability

The data used for the conclusions of this study is made available from the publicly accessible published sources mentioned in the list of references.

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